

a failure detector which detects and distinguishes between different types of failures of the brake device based on the pressure detected by the fluid source pressure detector and the operating amount detected by the brake operating amount detector, and a brake fluid control device which controls the brake fluid pressure in different ways based on the type of the failure detected by the failure detector, wherein the fluid pressure source includes a master cylinder which has a pressure chamber and generates the fluid pressure corresponding to an input power, a first compressing device which compresses an operating fluid of the pressure chamber of the master cylinder and supplies a compressed operating fluid to a brake, a second compressing device which compresses the operating fluid stored in an atmospheric condition in a reservoir chamber, the reservoir chamber is larger than the pressure chamber of the master cylinder, and

the brake fluid control device includes a brake condition selection device which selects either of a first condition in which the brake is compressed by the first compressing device, or a second condition in which the brake is compressed by the second compressing device based on the type of the failure detected by the failure detector.

REMARKS

Claims 1, 3-12, 14 and 16-21 are pending in this application. By this Amendment, claims 1, 3, 5, 6, 8 and 9 are amended. No new matter is added.

The attached Appendix includes marked-up copies of each rewritten claim (37 C.F.R. §1.121(c)(1)(ii)).

Applicants wish to express their appreciation to Examiner Burch for the courtesies extended to Applicants' representative during the interview held December 16, 2002. The discussion is incorporated into the remarks below and constitutes Applicants' record of the interview.

Entry of this amendment is proper under 37 CFR §1.116 because the amendments: a) place the application in condition for allowance for all the reasons discussed herein; b) do not raise any new issues requiring further search or consideration; c) place the application in better condition for appeal, if necessary; and d) address formal requirements of the Final Rejection and preceding Office Action. Thus entry of the Amendment is respectfully requested.

In paragraph 10, on page 6 of the Office Action, it was indicated that claims 1, 3-12 and 14 would be allowable if rewritten to overcome the rejections under 35 U.S.C. §112, second paragraph and to include all of the features of the base claim and any intervening claim. Applicants gratefully appreciate the indication of allowability and submit that claims 1, 3-12 and 14 have been rewritten to overcome the rejection under 35 U.S.C. §112, second paragraph. Thus, allowability for claims 1, 3-12 and 14 are respectfully requested.

In paragraph 11, on page 6 of the Office Action, claim 19 was objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the features of the base claim and any intervening claims. Applicants gratefully appreciate the indication of allowable subject matter in claim 19. However, it is respectfully submitted that claims 16-18, 20 and 21 are also allowable in view of the foregoing amendments and following remarks.

In paragraph 1, page 2 of the Office Action, the drawings were objected because master pressure PMO in Fig. 9 needed clarification. As discussed and agreed during the interview, Fig. 9 illustrates the relationship between the master cylinder pressure and the brake operating power. For example, the master pressure PMO line describes, at the time that the brake operating power is in the first predetermined operation power F0, the brake device at a normal condition when the master pressure PMO is above the first predetermined fluid pressure Pth1. However, if the master pressure PMO falls below the first predetermined fluid

pressure Pth1, then there is an indication of failure of the servo function or small amounts of leakage. F0' describes the set load of the return spring of the master cylinder 14, whereby the fluid pressure is generated in the pressure chamber. Accordingly, reconsideration and withdrawal of the objection are respectfully requested.

In paragraph 3, on page 2 of the Office Action, the specification is objected under 35 U.S.C. §132 because it introduces new matter. However, Applicants respectfully submit that the originally filed specification clearly provides proper and sufficient support. For example, paragraphs [0010], [0045], [0051], [0056] and [0120] describe the pressure pistons and paragraphs [0045]-[0047] and [0113]-[0017] describe the return springs. Further, one of ordinary skill in the art would know and understand the detail structure of the master pressure cylinder device that provides the various structure of the pressure pistons and return springs as described in the specification. Accordingly, Applicants respectfully submit that no new matter has been added and withdrawal of the objection is respectfully requested.

In paragraph 4, on page 3 of the Office Action, the specification was objected to as failing to provide proper antecedent basis for the claimed subject matter in claims 8 and 9. By this Amendment, claims 8 and 9 are amended to obviate the objection. Reconsideration and withdrawal of the objection are respectfully requested.

In paragraph 7, on page 3 of the Office Action, claims 1, 3-12 and 14 were rejected under 35 U.S.C. §112, second paragraph. By this Amendment, claims 1, 3, 5 and 6 have been amended as suggested by the Examiner. With respect to claims 8 and 9, the term "reservoir tank" is amended to "reservoir chamber" and proper antecedent basis for "reservoir chamber" can be found, for example, in paragraph [0023] in the specification. Reconsideration and withdrawal of the rejections are respectfully requested.

In paragraph 9, on page 5 of the Office Action, claims 16-18, 20 and 21 were rejected under 35 U.S.C. §103(a) as being unpatentable over JP-10147236 to Yamada et al.

("Yamada") in view of U.S. Patent 4,867,509 to Maehara et al. ("Maehara") and U.S. Patent Application 2002/0030402 to Harada et al. ("Harada"). The rejection is respectfully traversed.

Yamada fails to disclose, teach or even suggest a failure detector which detects and distinguishes between different types of failures of the brake device based on the pressure detected by the fluid source pressure detector and the operating amount detected by the brake operating amount detector, as recited in claim 16.

Yamada merely discloses a microprocessor CPU that determine whether an abnormality determination of an accumulator or a motor to be carried out on the basis of a pressure detection signal from the pressure switch PH (step H) (col. 9, lines 12-14 and 22-25), and on the basis of a motor current value I_m (step PI) (col. 11, lines 6-13 and 31-37). However, Applicants' claimed invention discloses a failure detector that detects the failures based on the pressure detected by the fluid source pressure detector and the operating amounts detected by the brake operating amounts detector, as recited in claim 16. That is, Yamada detection of abnormality is based on the pressure switch PH and motor current value I_m , whereas Applicants' claimed invention recites the failures based on the pressure detected by the fluid source pressure detector and the operating amount detected by the brake operating amount detector.

Further, the Office Action alleges that the brake switch BS in Yamada represents the brake operating amount detector of Applicants' invention. However, Yamada merely discloses the brake switch BS as an indicator when a brake pedal BP is depressed (col. 4, lines 55-56), and thus fails to disclose or suggest utilizing the brake pedal depressing signal to determine the abnormality of the brake device.

Accordingly, Yamada fails to disclose, teach or suggest a failure detector which detects and distinguishes between different types of failures of the brake device based on the

pressure detected by the fluid source pressure detector and the operating amount detected by the brake operating amount detector, as recited in claim 16.

With regards to Maehara, Maehara merely discloses a bottoming switch 55 which turns ON when a stroke of the brake pedal exceeds a predetermined value (col. 5, lines 28-32). However, Applicants' claimed invention recites the bottoming detector that detects a bottoming condition in the master cylinder based on an increase in gradient of the brake operating amount, as recited in claim 16. By having an increasing gradient of the brake operating amount, the brake device can detect the bottoming condition accurately by detecting rapid changes in the brake operating amount. Accordingly, Maehara fails to disclose or teach the bottoming detector that detects a bottoming condition in the master cylinder based on an increase in gradient of the brake operating amount, as recited in claim 16.

With regards to Harada, Harada merely discloses the use of monitoring the depression stroke, depression speed or depression acceleration of the brake pedal (paragraph [0124], lines 10-11). However, Applicants respectfully submit that these parameters are used to detect a rapid braking, rather than to detect the failure of the brake device as recited in claim 16. Accordingly, Harada does not teach that the failure detection is carried out based on the detection signal of the depression stroke, depression speed or depression acceleration of the brake pedal, and thus would not have been obvious to one of ordinary skill in the art to have combined the abnormality detecting device of Yamada with an increasing of brake operating amount as taught by Harada.

For at least these reasons, Applicants respectfully submit that Yamada, Maehara and Harada, singularly or in combination, fail to disclose, teach or even suggest the features recited in independent claim 16. Claims 17-21, which depend from claim 16 are likewise distinguishable over the applied references for at least the reasons discussed above, as well as

any additional features they recite. Reconsideration and withdrawal of the rejections under 35 U.S.C. §103 are respectfully requested.

In view of the foregoing amendments and remarks, Applicants submit that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1, 3-12, 14 and 16-21 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in better condition for allowance, the Examiner is invited to contact Applicants' undersigned representative at the telephone number set forth below.

Respectfully submitted,



James A. Oliff
Registration No. 27,075

David J. Cho
Registration No. 48,078

JAO:DXC/kys

Attachments:

Petition for Extension of Time
Appendix

Date: December 26, 2002

OLIFF & BERRIDGE, PLC
P.O. Box 19928
Alexandria, Virginia 22320
Telephone: (703) 836-6400

<p>DEPOSIT ACCOUNT USE AUTHORIZATION Please grant any extension necessary for entry; Charge any fee due to our Deposit Account No. 15-0461</p>
--